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ABSTRACT

Teaching via Interactive Television (ITV) is more than pushing a few buttons. Existing courses taught in the traditional lecture-based format must be modified in order to be effective via ITV. Visual literacy and guidelines which support visual literacy are critical to the success and effectiveness of an ITV course. This paper addresses visual literacy; general instructional design guidelines for materials; and specific guidelines for the creation of transparencies, copystand materials, and computer-delivered presentations intended to be used with a two-way ITV system. (Author/AEF)

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Teaching via ITV: Instructional Design -- PLUS!

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Abstract

Teaching via ITV is more than pushing a few buttons. Existing courses taught in the traditional lecture-based format must be modified in order to be effective via ITV. Visual literacy and guidelines which support visual literacy are critical to the success and effectiveness of an ITV course. This presentation will address visual literacy; general instructional design guidelines for materials; and specific guidelines germane to the creation of transparencies, copystand materials, and computer-delivered presentations intended to be used with a two-way interactive television system (ITV).

Today's Trends in Distance Learning

Today we are witnessing in education major changes in the delivery of courses. "Distance education" may be delivered at the same time to different locations, at different times to the same place, or at different times to different locations.

". . . current courses taught in the traditional lecture-based format cannot be transported to a distance learning environment without modification. . . . and must incorporate instructional design features that will enhance distance learning" (Cyrs and Conway, p. ix). However, the instructor need not be the sole designer of a course offered via ITV, since Oliver points out that the creation of an ITV course should be a team approach (Willis, p. 175). New skills and expertise are needed to design a course being offered via distance learning, and fortunately many institutions have instructional designers available to assist faculty with the ITV course and materials development.

It is important to remember than this presentation/paper will limit the scope to include only interactive television (ITV), its complexities, and its criteria for educational materials.

Visual Literacy

At the heart and soul of materials design for ITV is the concept of visualization. In defining visual literacy, it is important to recognize that the term is really two-pronged: ". . . . the ability to interpret visual messages accurately and to create such messages" (Heinich, et al, 1996, p. 67). The critical role which visuals play in education has been documented since the late 1800s with John Dewey's work, so we know that visual literacy is important today in education. Thus, educators, whether they be teachers, graphic artists, or instructional designers, be cognizant of guidelines which enhance visual literacy and in the end teaching effectiveness of courses taught via interactive television.

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General Instructional Design Guidelines

There are basic instructional design guidelines which apply to most educational materials formats. These will be discussed in this section of the presentation and are not arranged by priority or preference, simply in the order in which the author wrote them down from various sources.

- Most learners prefer color over black-and-white visuals. In most cases there is no significant difference is the amount of learning which takes place, but the students prefer the color (Heinich, et al, 1996, p. 69). Thus, we give them what they prefer, and this is becoming routine because of color printers and color scanners.
- Photographs are preferred over line drawings by most learners, except when the color component is critical to the content to be learned (such as colored wires). In some cases the line drawings may actually communicate the message better (Heinich, et al, 1996, p. 69).
- Many learners prefer very realistic visuals over abstract representations, but teachers will want to "strike a balance" between the two for their individual instructional purposes (Heinich, et al, 1996, p. 69).
- Simpler visuals are usually more effective, regardless of age group (Heinich, et al, 1996, p. 69). In this situation, even a drawing as simple as that of a ball can show motion by adding "movement lines" or a sketch of a person running can emphasize the action by having the stick figure's legs bent in a running position and/or "movement lines" behind the feet.
- Elements of Art (line, shape, texture, and color) and Principles of Design (arrangement, balance, and unity) should be incorporated whenever possible (Heinich, et al, 1993, pp. 77-82).
- Consistent background color and/or design adds continuity and structure to a set of visuals. Some examples of the consistent background may be a company or school logo on each visual, the same background color/picture, or the same graphic design feature (i.e. a colored bullet at the top or bottom of each visual).
- Easy-to-read color combinations enhance visuals. A light background with dark text is usually recommended. The opposite approach--dark background with light text--may be used, but it is not necessarily to the liking of the majority of people. Heinich, et al (1996, p. 83) point out that there are really three color conditions to consider when preparing colored visuals: the background, the foreground images and text, and the highlights. Cool colors (green and blue) recede, and warm colors (red and orange) "leap out" at the viewer; use the cool colors for the background and warm colors for the highlights (p. 83).
- Easy-to-read letter styles are straightforward and leave little room for guessing or confusion. According to Heinich, et al (1996, p. 76), for straightforward informational or instructional purposes, a plain lettering style (not decorative) should be used. A sans serif style such as Helvetica or a simple serif style such as Palatino or New Century Schoolbook may be used. Heinich, et al (1996, p. 76) point out that although there is a tendency to use sans serif typefaces for projected visuals and serif for print, this is not a rule but simply a designer's preference rather than a research-based principle. Misanchuk points out that "fancy" variations such as outline or shadow are difficult to read and should be avoided except for special effects (Willis, p. 121).
- Not only should the letter style be easy to read, but it should be consistent throughout the presentation. Keep the number of letter styles to two; some instructional designers recommend one style (perhaps Helvetica) for the title and another style (perhaps Palatino) for the body (Shrode).
- Special effects (bold, italics, underscoring, all capital letters, etc.) have their place, but should be used sparingly. Many people are convinced that if one effect is good, think how wonderful three or four effects can be. Some authors refer to these special effects as "prompts" or "cues" and still follow the same guideline: use sparingly. Cyrs and Conway (1997, p. 216) reiterate this concept by indicating that prompts and cues should be used consistently and only one at a time, not **BOLD *ITALIC* CAPITAL LETTERS THAT ARE <u>UNDERLINED</u>**. Overkill is out!
- For best legibility, lowercase letters should be used, adding capitals only where normally required; short headlines may be in all capital letters, but phrases and sentences should be in lowercase lettering (Heinich, et al, 1996, p. 76).
- Font size is critical. The rule of thumb is: whatever the format, the materials must be readable by all members of the audience in the situation for which they were intended. For example, a bulletin board is intended to be viewed by people standing nearby, so the print does not need to be extremely large;if a visual is intended to be shown in class, the students in the back row must be able to read the printed material. Thus, in a 30-foot classroom, the print must be 1-1/2O high (Heinich, et al, 1996, p. 76). The same basic guideline applies to computer-delivered presentations and transparencies, which will be discussed later.
- White space, the space in which nothing is printed, makes the visual more "inviting" and should be incorporated in materials design (Misanchuk, in Willis, p. 119).

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- The consistent use of a horizontal format in projected visuals helps reduce the keystone effect/distortion at the top and bottom of the projection, caused by the overhead projector at one level and the screen on a higher level (Heinich, et al, 1996, p. 145).
- The computer has made the creation of visuals very easy and quick. Whenever possible and appropriate, use computer-generated masters. They are easy to create, can be in color or black and white, look more professional, and can incorporate the appropriate size font.
- Key words and phrases "get the point across" without telling the whole story. Some teachers use a visual of key words and phrases as a prompt or outline to a lecture, while others will use that format as an outline for students as they take notes. This format provides necessary white space in addition to the structural or organizational format.
- Headings and sideheadings add structural format, and they can be considered an organizational tool, which can be especially helpful if materials presented are subsets within major sets (or even subsets within subsets); an example of this structuring might be phyla within the animal kingdom.
- A combination of words and pictures can be very effective. Use a limited number of words plus pictures to emphasize points. These pictures can be freehand drawings, clip art, scanned photographs, or material from the WWW. HINT: remember the copyright issues.

These general guidelines are meant to be the base from which we begin to design materials for use with ITV courses. They may need to be modified slightly or be more specific as each of the following formats are discussed.

Transparency Guidelines for Use with ITV

Transparencies, whether they be created using a photocopy machine, a thermofax machine, or a laser printer, must follow one of the major tenets of educational technology: they must be able to be seen by everyone in the classroom.
Thus, certain guidelines listed above can be expanded to include the following rules:

- A laser printer creates the clearest, most easily read of the masters. Dot matrix is undesirable, and most ink jet printers have a fuzzy edge surrounding each letter. It is best to use the laser printer, then, rather than start with a poorer quality original.
- Since students at a distance as well as on-premise students will be viewing the transparency, it is critical to use a font size which is large enough to be seen. The smallest recommended font is 24, with 36 being the more desirable.
- Contrasting colors are critical. Black and white tends to be very stark and is more strenuous on the students' eyes it seems than other color combinations such as light yellow background with either dark purple or dark blue text, or some other combination of pale background and dark color. It is advisable to experiment with different color combinations and ITV systems because not all of the systems are alike.
- Internet, WWW, photographs (scanned), and clip art are available to enhance transparencies. These can be especially effective if the transparency is made with the color printer process. These visuals can make up a portion of the transparency or have text printed over the visual. Again, experiment!

Copystand Guidelines for ITV Materials

Many ITV systems utilize Elmo--the projection system for both transparencies and hardcopy materials. The following are just a few guidelines which will address the hardcopy materials rather than transparencies.

- Advance preparation allows for very professional looking materials. These can be completed on a laser printer, using large print (18 or larger).
- Another feature of the copystand is that hand-written, on-the-spot materials can be created for transmission. There are just a few pointers to keep in mind when creating these materials: use a bold pen; use a marker that is blue, black, or red; and use light blue paper (to reduce the glare).
- "Live-write" works only if the instructor has legible handwriting. If the handwriting is not legible, either print or (preferably) use a computer and prepare the materials in advance.
- When handwriting material to be transmitted, use either lined paper or a lined backing sheet. The "hills and valleys" approach to writing does not work well with ITV.
- The copystand permits the teacher to transmit information directly from a book or other type of visual. Unfortunately, often these pictures or text documents are so small that transmission is poor unless the item is

enlarged prior to transmission. Photocopiers take only a few minutes to complete this small but necessary task.

The above guidelines complement the general guidelines and are intended only as suggestions. Each individual ITV system/network operates and transmits differently, so experimentation is critical.

Computer-delivered Presentation Guidelines for ITV

Computer-delivered presentations are "JDB"--just doing business. Whether we are delivering an in-class presentation, conducting training, or transmitting information via the ITV network, there are guidelines which need to be followed. The presentation software for the different platforms are very similar (Persuasion for the Macintosh, PowerPoint for the PC), and many Macintosh computers have the ClarisWorks program included which has a slide show feature. The following points should be kept in mind when creating computer-delivered presentations for ITV transmission.

- The smallest font used should be size 36. Monitors at some locations are very small (much to our chagrin), and initial size is critical.
- Color combinations are nearly unlimited because of the computer options. Some of us have a "real eye" for combinations, some of us have studied which combinations are effective, and some of us don't have a clue. Although color combinations can be a mix of effective groupings and personal preference, there are just some combinations which do not go well together. It's probably a good idea to get the opinion of graphic- or art-trained professionals if there is doubt as to the appropriateness of certain color groupings.
- Use word pictures with key words and phrases to keep the amount of text to a minimum. This idea supports the "a picture is worth a thousand words" concept. Note that you the designer should decide whether the text or the graphic should be dominant and design from that perspective. Ask yourself the following question: Which conveys the idea better? (Cyrs and Conway, p. 216).
- Follow the KISS approach: Keep it Simple, Stupid (Cyrs and Conway, p. 216) or Keep it Short and Simple (for those who have qualms about using the term "stupid" when teaching these concepts to students).
- Include graphics for emphasis. These are available from many sources, but it is important that the designer consider cultural diversity and diverse representation as well as other guidelines.
- Some of the presentation software packages permit fade in/fade out as well as other effects, including layering. If using both text and pictures, it is recommended that both be brought in at the same time (same layer) rather than having them separated. Once again, this is a way to reduce confusion for the student.
- Use the 3-to-4 ratio, horizontal format, with a bleed area. You want full-screen projection, but this must be indicated to the computer.
- Provide the students with a handout which has the same computer frames that are being transmitted. This will provide them a place to take notes, and the instructor can decide whether there will be 2, 4, or 6 frames per page. Some instructors have 3 frames per page (on the left), and they provide lines on the right half of the page opposite the frames for notes. Cyrs and Conway point out that when printing the handouts from the presentation masters, remove any background colors, gradients, or colors so that handout will print out in black text on a white background (p. 216).
- Test a sample of your work using the ITV system so you can see precisely what will be transmitted to the other locations as well as to the students in the room where the presentation is originating. Unfortunately, what is often seen on the computer monitor (especially color combinations) is not accurate as far as what is received at other locations.

These are only a few tips for creating computer-delivered presentations to be presented via an ITV network. There are many others which fall under the category of general guidelines and common sense.

What's This Have to do With Teaching Effectiveness?

Teaching effectiveness, assessment, and evaluation are key terms with which we in the academic community are intimately familiar. When the above guidelines are followed, students frequently report one or more of the following:

- The teacher is extremely organized.
- The materials for an outline are easy to follow.

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- The materials have a logical flow.
- It is easy to see/read what the teacher is discussing.
- The instructor demonstrates good use of technology in the classroom.
- This material provides a check-list format.

Teaching via ITV, if done correctly, forces the instructor to be well prepared and organized. These assets do, in turn, impact the effectiveness of the course or at least the perceptions of the students as to the effectiveness.

Conclusion

This presentation has addressed visual literacy and instructional design as they relate to teaching courses via the two-way interactive television system (ITV). Both general guidelines and specific guidelines for transparencies, copystand masters, and computer-delivered presentations have been presented. It is important to remember that these guidelines provide for creation of material that will supplement and complement a course presentation; these materials will not replace the need for the instructor as the main provider of information. One final parting "words of wisdom" has to do with the creation of these materials: do it right the first time, test out anything being considered for transmission quality, and get assistance if and when it is available.

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